

IN THE SPECIFICATION

Please delete the paragraph at page 3, lines 6-11, in its entirety and insert therefor the following new paragraph:

The present invention relates to a thermoplastic elastomer composition characterized in that the composition comprises, (A) a conjugated diene-based polymer obtained by polymerizing a conjugated diene-based compound using a rare earth element compound-based catalyst and (B) a thermoplastic resin at least one selected from the group consisting of a crystalline polyolefin-based resin and an amorphous polyolefin-based resin.

Please delete the paragraphs at page 4, lines 13-22, in their entirety and insert therefor the following new paragraph:

Further, as the thermoplastic elastomer composition of the present invention, preferred is one obtained by dynamic heat treatment of the above-mentioned conjugated diene-based polymer (A) and thermoplastic resin at least one selected from the group consisting of a crystalline polyolefin-based resin and an amorphous polyolefin-based resin (B) under the presence of a crosslinking agent.

Please delete the paragraph at page 4, line 23 to page 5, line 1, in its entirety and insert therefor the following new paragraph:

Furthermore, for the compounding ratio of the thermoplastic elastomer composition of the present invention, it is preferred that the conjugated diene-based polymer (A) is from 50 to 95 parts by weight and the thermoplastic resin at least one selected from the group consisting of a crystalline polyolefin-based resin and an amorphous polyolefin-based resin (B) is from 50 to 5 parts by weight [provided that (A)+(B)=100 parts by weight].

Please delete the paragraph at page 5, lines 2-6, in its entirety and insert therefor the following new paragraph:

In addition, the thermoplastic elastomer composition of the present invention may contain a softener and/or a plasticizer in an amount of 200 parts by weight or less, when the total of the conjugated diene-based polymer (A) and the thermoplastic resin at least one selected from the group consisting of a crystalline polyolefin-based resin and an amorphous polyolefin-based resin (B) is taken as 100 parts by weight.

Please delete the paragraphs at page 27, line 26 to page 28, line 2, in its entirety.

Please delete the paragraph at page 31, line 20 to page 33, line 13, in its entirety and insert therefor the following new paragraph:

Further, the compounds represented by the abovementioned formula (XVI) include, for example, diphenyltin bismethylmaleate, diphenyltin bis-2-ethylhexatate, diphenyltin bisoctylmaleate, diphenyltin bisbenzylmaleate, di-n-butyltin bismethylmaleate, di-n-butyltin bis-2-ethylhexatate, di-n-butyltin bisoctylmaleate, di-n-butyltin bisbenzylmaleate, di-t-butyltin bismethylmaleate, di-t-butyltin bis-2-ethylhexatate, di-t-butyltin bisoctylmaleate, di-t-butyltin bisbenzylmaleate, diisobutyltin bismethylmaleate, diisobutyltin bis-2-ethylhexatate, diisobutyltin bisoctylmaleate, diisobutyltin bisbenzylmaleate, diisopropyltin bismethylmaleate, diisopropyltin bis-2-ethylhexatate, diisopropyltin bisoctylmaleate, diisopropyltin bisbenzylmaleate, dihexyltin bismethylmaleate, dihexyltin bis-2-ethylhexatate, dihexyltin bisoctylmaleate, dihexyltin bisbenzylmaleate, di-2-ethylhexyltin bismethylmaleate, di-2-ethylhexyltin bis-2-ethylhexatate, di-2-ethylhexyltin bisoctylmaleate, di-2-ethylhexyltin bisbenzylmaleate, dioctyltin bismethylmaleate, dioctyltin bis-2-ethylhexatate, dioctyltin bisoctylmaleate, dioctyltin bisbenzylmaleate, distearyl tin bismethylmaleate, distearyl tin bis-

2-ethylhexatate, distearyl tin bisoctylmaleate, distearyl tin bisbenzylmaleate, dibenzyl tin bismethylmaleate, dibenzyl tin bis-2-ethylhexatate, dibenzyl tin bisoctylmaleate, dibenzyl tin bisbenzylmaleate, diphenyl tin bismethyladitate, diphenyl tin bis-2-ethylhexatate, diphenyl tin bisoctyladitate, diphenyl tin bisbenzyladitate, di-n-butyl tin bismethyladitate, di-n-butyl tin bis-2-ethylhexatate, di-n-butyl tin bisoctyladitate, di-n-butyl tin bisbenzyladitate, di-t-butyl tin bismethyladitate, di-t-butyl tin bis-2-ethylhexatate, di-t-butyl tin bisoctyladitate, di-t-butyl tin bisbenzyladitate, diisobutyl tin bismethyladitate, diisobutyl tin bis-2-ethylhexatate, diisobutyl tin bisoctyladitate, diisobutyl tin bisbenzyladitate, diisopropyl tin bismethyladitate, diisopropyl tin bis-2-ethylhexatate, diisopropyl tin bisoctyladitate, diisopropyl tin bisbenzyladitate, dihexyl tin bismethyladitate, dihexyl tin bis-2-ethylhexatate, dihexyl tin bisbenzyladitate, di-2-ethylhexyl tin bismethyladitate, di-2-ethylhexyl tin bis-2-ethylhexatate, di-2-ethylhexyl tin bisoctyladitate, di-2-ethylhexyl tin bisbenzyladitate, dioctyl tin bismethyladitate, dioctyl tin bis-2-ethylhexatate, dioctyl tin bisoctyladitate, dioctyl tin bisbenzyladitate, distearyl tin bismethyladitate, distearyl tin bis-2-ethylhexatate, distearyl tin bisoctyladitate, distearyl tin bisbenzyladitate, dibenzyl tin bismethyladitate, dibenzyl tin bis-2-ethylhexatate, dibenzyl tin bisoctyladitate, dibenzyl tin bisbenzyladitate and the like.

Please delete the paragraph at page 34, line 24 to page 35, line 17, in its entirety and insert therefor the following new paragraphs:

The thermoplastic resins (B) is at least one selected from the group consisting of a crystalline polyolefin-based resin and an amorphous polyolefin-based resin and include, for example, a crystalline polyolefin resin and a maleic anhydride graft polymer thereof, an amorphous polyolefin resin and a maleic anhydride graft polymer thereof.

Further, an aminoacrylamide polymer, polyisobutylene, an ethylene-vinyl chloride polymer, an ethylene-vinyl alcohol polymer and an ionomer thereof, an ethylene-vinyl

acetate copolymer, polyethylene oxide, an ethylene-acrylic acid copolymer, polyisobutylene and an maleic anhydride graft polymer thereof, chlorinated polypropylene, a 4-methylpentene-1 resin, polystyrene, an ABS resin, an ACS resin, an AS resin, an AES resin, an ASA resin, an MBS resin, an acrylic resin, a methacrylic resin, a vinyl chloride resin, a vinylidene chloride resin, a polyamide resin, a polycarbonate, a vinyl alcohol resin, a vinyl acetal resin, a methyl methacrylate resin, a fluorocarbon resin, a polyether resin, polyethylene terephthalate, a polyacrylic ester, a hydrogenated diene-based polymer and the like can be used as the thermoplastic resins other than component (B), and the hydrogenated diene-based polymer is preferably used.

Please delete the paragraph at page 42, line 24 to page 43, line 21, in its entirety and insert therefor the following new paragraph:

Further, the hydrogenated diene-based polymers (b3) used as the thermoplastic resin other than component (B) include, for example, a hydrogenated product of a diene-based polymer (hereinafter also referred to as “a polymer before hydrogenation”) such as a homopolymer of a conjugated diene monomer, a random copolymer of a conjugated diene monomer and a vinyl aromatic monomer, a block copolymer comprising a polymer block of a vinyl aromatic monomer and a polymer block of a conjugated diene monomer, a block copolymer comprising a polymer block of a vinyl aromatic monomer and a random copolymer block of a conjugated diene monomer and a vinyl aromatic monomer, a block copolymer comprising a polymer block of a conjugated diene monomer and a copolymer block of a conjugated diene monomer and a vinyl aromatic monomer, a block copolymer comprising a polymer block of a conjugated diene monomer and a tapered block composed of a vinyl aromatic monomer and a conjugated diene monomer with the vinyl aromatic monomer gradually increasing, a block copolymer comprising a random copolymer block of

a conjugated diene monomer and a vinyl aromatic monomer and a tapered block composed of a vinyl aromatic monomer and a conjugated diene monomer with the vinyl aromatic monomer gradually increasing, or a block copolymer comprising a polybutadiene block having a vinyl bond content of 30% by weight or less and a polymer block of a conjugated diene monomer having a vinyl bond content of more than 30% by weight.

Please delete the paragraph at page 47, line 4 to page 48, line 11, in its entirety and insert therefor the following new paragraph:

As the hydrogenation catalyst, there can be used a compound containing any one of metals of Groups Ib, IVb, Vb, VIb, VIIb and VIII in the Periodic Table, for example, a compound containing a Ti, V, Co, Ni, Zr, Ru, Rh, Pd, Hf, Re or Pt atom. Specific examples thereof include a metallocene-based compound of Ti, Zr, Hf, Co, Ni, Pd, Pt, Ru, Rh, Re or the like, a carrier type heterogeneous catalyst in which a metal such as Pd, Ni, Pt, Rh or Ru is carried on a carrier such as carbon, silica, alumina or diatomaceous earth, a homogeneous Ziegler type catalyst in which an organic salt or acetylacetonate salt of a metal element such as Ni or Co is combined with a reducing agent such as an organic aluminum, an organic metal compound of Ru, Rh or the like or a complex thereof, a fullerene or carbon nanotube in which hydrogen is occluded, and the like. Of these, a metallocene compound containing any one of Ti, Zr, Hf, Co and Ni is preferred in that the hydrogenation reaction can be performed in an inert organic solvent in a homogeneous system. Further, a metallocene compound containing any one of Ti, Zr and Hf is preferred. In particular, a hydrogenation catalyst obtained by reacting a titanocene compound with an alkyl lithium is preferred, because it is an inexpensive and particularly industrially useful catalyst. The above-mentioned hydrogenation catalysts may be used either alone or as a combination of two or more of them. After the hydrogenation, a residue of the catalyst is removed as needed, or a phenolic amine-

based antiaging agent is added, and then, the hydrogenated diene-based copolymer is isolated from a hydrogenated diene-based copolymer solution. The isolation of the hydrogenated diene-based copolymer can be performed, for example, by a method of adding acetone, an alcohol or the like to the hydrogenated diene-based copolymer solution to allow the copolymer to precipitate, a method of pouring the hydrogenated diene-based copolymer solution into hot water with stirring, and removing the solvent by distillation, or the like.

Please delete the paragraph at page 48, line 13 to page 49, line 1, in its entirety and insert therefor the following new paragraph:

The olefinic unsaturated bond in the side chain or main chain contained in the conjugated diene unit of the conjugated diene polymer or conjugated diene-vinyl aromatic compound random copolymer is hydrogenated by such hydrogenation to obtain the hydrogenated diene-based polymer. The degree of hydrogenation in such a hydrogenated diene-based polymer is required to be 70% or more. The degree of hydrogenation as used herein indicates a value showing the ratio of the number of the hydrogenated olefinic unsaturated bonds in the side chains or main chains to the number of the olefinic unsaturated bonds in the side chains or main chains of the conjugated diene units before the hydrogenation, and is preferably 90% or more, and more preferably 95% or more. Such a hydrogenated diene-based polymer may be crosslinked. Crosslinking of the hydrogenated diene-based polymer can be performed by known methods.

Please delete the paragraph at page 49, lines 3-10, in its entirety and insert therefor the following new paragraph:

Specific examples of the above-mentioned hydrogenated diene-based polymers include a hydrogenated styrene-butadiene random copolymer, a hydrogenated isoprene-

styrene random copolymer, a hydrogenated styrene-butadiene block copolymer, styrene-butadiene-styrene block copolymer, a hydrogenated styrene-butadiene-isoprene block copolymer, a hydrogenated butadiene block copolymer and the like.

Please delete the paragraph at page 49, lines 17-21, in its entirety and insert therefor the following new paragraph:

As the above-mentioned thermoplastic resin (B), there may be used either any one of the above-mentioned polyolefin-based resin (b1) and the above-mentioned amorphous polyolefin-based resin (b2), or two or more of them in combination.

Please delete the paragraph at page 62, line 19 to page 63, line 10, in its entirety and insert therefor the following new paragraph:

The plastics include an ionomer, an aminoacrylamide polymer, polyethylene and a maleic anhydride graft polymer thereof, an ethylene-vinyl chloride polymer, an ethylene-vinyl alcohol polymer, an ethylene-vinyl acetate copolymer, polyethylene oxide, an ethylene-acrylic acid copolymer, polypropylene and a maleic anhydride graft polymer thereof, polyisobutylene and an maleic anhydride graft polymer thereof, chlorinated polypropylene, a 4-methylpentene-1 resin, polystyrene, an ABS resin, an ACS resin, an AS resin, an AES resin, an ASA resin, an MBS resin, a polycarbonate, an acrylic resin, a methacrylic resin, a vinyl chloride resin, a vinylidene chloride resin, a vinyl alcohol resin, a vinyl acetal resin, a methyl methacrylate resin, a fluorocarbon resin, a polyether resin, polyethylene terephthalate, a polyacrylic ester, a polyamide resin, a polyurethane, a polyimide, a polyurea resin, epoxy resin, phenol resin, urea resin, polybutene-1, a methylpentene resin, polyacrylonitrile and the like.

Please delete the paragraph at page 68, lines 2-17, in its entirety and insert therefor the following new paragraph:

Further, 1 part of an organic peroxide (2,5-di-methyl-2,5-di(t-butylperoxy)hexane, manufactured by NOF Corporation, product name: “Perhexa 25B-40”) and 1 part of a crosslinking assistant (divinylbenzene, manufactured by SANKYO CHEMICAL INDUSTRIES, LTD., product name: “Divinylbenzene 55% Purity) were blended with the resulting pellets, followed by mixing in a Henschel mixer (manufactured by Mitsui Mining Co., Ltd.) for 30 minutes. Then, using a twin-screw extruder (manufactured by Ikegai Corporation, type: “PCM-45”, screws completely engaged with each other and rotating in the same direction, L/D or the ratio of length of a screw flight portion L to screw diameter D: 33.5), the pellets were extruded while conducting dynamic heat treatment thereon under such conditions that they stay for 1 minute and 30 seconds at 230°C, at 300 rpm and at a shear rate of 400 sec<sup>-1</sup> to obtain a pellet-shaped dynamic crosslinking type thermoplastic elastomer composition.

Please delete the paragraph at page 73, line 20 to page 74, line 6, in its entirety and insert therefor the following new paragraph:

Eighty parts of an ethylene- $\alpha$ -olefin-based copolymer (manufactured by JSR Corporation, product name: “EP98AC”, oil-extended product with 75% by weight of paraffin oil based on 100 parts by weight of polymer) manufactured by JSR Corporation, 20 parts of a crystalline polyolefin-based resin (1) (polypropylene manufactured by Japan Polychem Corporation, product name: “Novatec PP BC06C”) as a thermoplastic resin, 0.2 part of an antiaging agent (manufactured by Ciba Specialty Chemicals Inc., product name: “Irganox 1010”) and a softener (manufactured by Idemitsu Kosan Co., Ltd., product name: “Diana Process Oil PW90”) were supplied into a 10-liter double arm type pressure kneader



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(manufactured by Moriyama Co., Ltd.) heated to 150°C, and kneaded at 40 rpm (shear rate: 200/sec) for 20 minutes.

Please replace the Table at page 75, with the following rewritten table:

[0129]

[Table 1]

Composition (parts)		Example					Comparative Example	
		1	2	3	4	5	1	2
Composition (parts)	Conjugated Diene-Based Polymer	80	70	70	50	80		
	BR01						80	
	Oil-Extended Ethylene- $\alpha$ -Olefin—Based Copolymer							75
	Crystalline Polyolefin-based resin (1)	20	20	20	20	20	20	25
	Crystalline Polyolefin-based resin (2)		10					
	Hydrogenated Diene Copolymer (1)			5				
	Hydrogenated Diene-Based Copolymer (2)				30			
	Diene-Based Block Copolymer			5				
	Mineral Oil-Based Softener	30	30	30	30	35		
	Filler					15		
	Organic Peroxide	1	1	1	1	1	1	1
	Crosslinking Assistant	1	1	1	1	1	1	1
	Antiaaging Agent							
	230°Cx10 kg	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	HS (DuroA)	22	21	30	50	31	5	280
Fluidity	g/10 min	66	78	65	64	71	63	60
Hardness	-	5.1	6.7	5	6.7	6	3.1	7.3
Tensile Breaking Strength	MPa							
Tensile Breaking Elongation	%	200	220	210	300	240	180	770
Compression Set	%	21	25	23	26	21	23	40